

What is claimed is:

1. A shutter curtain lifting prevention structure comprising:

a shutter curtain being comprised of a plurality of curtain pieces connected in a bendable manner;

guide rails along which edges of the shutter curtain being guided for ascending and descending to thereby open and close an opening; and

an engaging portion being provided on the guide rail so as not to block normal opening and closing of the shutter curtain, such that when the shutter curtain kept in a shut state is lifted from the lower surface of a bottom plate, one or more curtain pieces of at least a part of shutter curtain in a vertical posture are bent, whereby a part of the bent curtain piece is caused to be engaged by the engaging portion.

2. The structure of claim 1, wherein said curtain piece is a slat and a plurality of slats are connected via an interlock portion to constitute the shutter curtain, and wherein said part of the curtain piece which is engaged by the engagement portion is the interlock portion.

3. The structure of claim 2, wherein the interlock portion which is engaged by the engagement portion is an interlock portion for connecting the bottom plate and the slat, and wherein the engaging portion is a cutout recess formed in an interior side portion of the guide rail in the vicinity of the floor surface.

4. The structure of claim 1, said structure further comprising hardware

provided on the inner or outer side of the guide rail, wherein the engaging portion provided on the guide rail is an engaging prong which is formed so as not to project toward the guide groove, on at least an interior side wall of said hardware, and wherein pressing by the bent curtain pieces causes the interior or exterior side wall of the guide rail to expand, thus causing the curtain piece to be engaged by the engaging prong.

5. A shutter curtain lifting prevention structure comprising:

a shutter curtain formed by connecting a plurality of slats via an interlock portion in the vertical direction;

guide rails standing on both sides of an opening of the construction, by which both edges of said shutter curtain being guided for ascending and descending to thereby open and close an opening of the construction; and

a cutout recess being integrally formed at the guide groove of each guide rail, said cutout recess being formed by horizontally cutting out the interior side plane portion of the front face located above and in the vicinity of the floor surface, such that when a bottom plate of the shutter curtain kept in a shut state is lifted, a connection portion of the bottom plate and the slat, which is opposed to the cutout recess is made engaged by the engaging portion defined by the cutout recess, thus preventing lifting of the shutter curtain.

6. A shutter curtain lifting prevention structure comprising:

a shutter curtain formed by connecting a plurality of slats via an interlock portion in the vertical direction;

guide rails standing on both sides of an opening of the construction, by which

both edges of said shutter curtain being guided for ascending and descending to thereby open and close an opening of the construction;

a guide groove of the guide rail being formed between the interior side plane portion and exterior side plane portion of each guide rail; and

an interior side cutout recess being formed on the interior side plane portion, said interior side cutout recess having an engagement portion located at a position higher than the connection portion of a bottom plate and the slat of the shutter curtain kept in a fully closed state, such that when the bottom plate of the shutter curtain kept in a fully closed state is lifted from the exterior side, the bottom plate inclines and the connection portion is thereby caused to be engaged by the engaging portion of the interior side cutout recess, thus preventing lifting of the shutter curtain.

7. The structure of claim 6, said structure further comprising an exterior side cutout recess being formed on the exterior side plane portion so as to be opposed to the bottom plate of the shutter curtain kept in a fully closed state, such that when the bottom plate of the shutter curtain kept in a fully closed state is lifted from the exterior side, the bottom plate inclines with the lower end side thereof moving toward the exterior side via the exterior side cutout recess, and the connection portion is thereby caused to be engaged with the engagement portion of the interior side cutout recess, thus preventing lifting of the shutter curtain.

8. A shutter curtain lifting prevention structure comprising:

a shutter curtain formed by connecting a plurality of slats via an interlock portion in the vertical direction;

guide rails standing on both sides of an opening of the construction, by which both edges of said shutter curtain being guided for ascending and descending to thereby open and close an opening of the construction;

a guide groove of the guide rail being formed between the interior side plane portion and exterior side plane portion of each guide rail;

an inner space of the guide rail being defined by the guide groove for receiving an edge portion of the shutter curtain, an interior side space of the guide groove, and an exterior side space of the guide groove;

an intra-rail hook member being provided in the interior side space of the inner space of the guide rail, said intra-rail hook member having an engaging portion located at a position higher than the position of the connection portion of the bottom plate and slat of the shutter curtain kept in fully closed state; and

an interior side cutout recess being formed on the interior side plane portion of the guide rail, said interior side cutout recess containing a portion opposed to the engaging portion of the intra-rail hook member, such that when the bottom plate of the shutter curtain kept in a fully closed state is lifted from the exterior side, the bottom plate inclines and the connection portion is thereby caused to be engaged by the engaging portion of the intra-rail hook member, thus preventing lifting of the shutter curtain.

9. The structure of claim 8, said structure further comprising an exterior side cutout recess being formed on the exterior side plane portion of the guide rail, said exterior side cutout recess containing a portion opposed to the bottom plate of the shutter curtain kept in a fully closed state, such that when the bottom plate of the

shutter curtain kept in a fully closed state is lifted from the exterior side, the bottom plate inclines with the lower end side thereof moving toward the exterior side via the exterior side cutout recess, and the connection portion is thereby caused to be engaged by the engagement portion, thus preventing lifting of the shutter curtain.

10. The structure of claim 5, 6, or 8, said structure further comprising a deformable cover being provided at the cutout recess of the guide rail for closing the cutout recess, such that when the bottom plate of the shutter curtain kept in a fully closed state is lifted from the exterior side, the connection portion presses, and thereby deforms, the cover for the cutout recess to thereby cause the connection portion to be engaged by the engagement portion.

11. The structure of claim 5, 6, or 8, said structure further comprising a rotatable cover being provided at the cutout recess of the guide rail for closing the cutout recess, such that when the bottom plate of the shutter curtain kept in a fully closed state is lifted from the exterior side, the connection portion presses, and thereby rotates, the cover for the cutout recess to thereby cause the connection portion to be engaged by the engagement portion.

12. The structure of claim 7 or 9, said structure further comprising an interior side deformable cover being provided at the interior side cutout recess of the guide rail for closing the interior side cutout recess and an exterior side deformable cover being provided at the exterior side cutout recess of the guide rail for closing the exterior side cutout recess, such that when the bottom plate of the shutter curtain kept in a state of

fully closed is lifted from the exterior side, the lower end side of the bottom plate moves toward the exterior side while pressing, and thereby deforming, the exterior side cover and consequently inclines, so that the connection portion presses, and thereby deforms, the cover of the interior side cutout recess, as a result of which the connection portion is caused to be engaged by the engagement portion.

13. The structure of claim 7 or 9, said structure further comprising an interior side rotatable cover being provided at the interior side cutout recess of the guide rail for closing the interior side cutout recess and an exterior side rotatable cover being provided at the exterior side cutout recess of the guide rail for closing the exterior side cutout recess, such that when the bottom plate of the shutter curtain kept in a state of fully closed is lifted from the exterior side, the lower end side of the bottom plate moves toward the exterior side while pressing, and thereby rotating, the exterior side cover and consequently inclines, so that the connection portion presses, and thereby deforms, the cover of the interior side cutout recess, as a result of which the connection portion is caused to be engaged by the engagement portion.

14. The structure of any one of claims 10 through 13, said structure further comprising a detection portion being provided in the vicinity of the cutout recess, for detecting deformation or rotation of the cover.

15. A shutter curtain lifting prevention structure comprising:

a shutter curtain being comprised of a plurality of curtain pieces connected in a bendable manner;

guide rails along which the edges of the shutter curtain being guided for ascending and descending along the guide rails to thereby open and close an opening section; and

hardware being provided on the inner or outer side of the guide rail, said hardware being provided with an engagement prong formed at least on the interior side lateral wall of said hardware so as not to project into the guide groove, such that when the shutter curtain is lifted from the lower surface of the bottom plate while the shutter is kept shut, pressing by the bent curtain pieces which are bent in association with the lifting causes the interior or exterior side lateral wall of the guide rail to expand, thus causing the curtain piece to be engaged by the engaging prong.

16. The structure of claim 15, wherein the curtain piece to be engaged by the engagement prong of the hardware is an interlock portion connecting the slat.